3)   calculating at least one parameter of the system from the responses measured in steps 1) and 2).

3.   (Amended) A method according to claim 1 wherein at least one of the test signals has a substantially sinusoidal waveform.

6.   (Amended) A method according to claim 1 further comprising;

4)   applying at least one additional test signal to the system and measuring the response of the system to at least one test signal; and

wherein step 3) comprises calculating at least one parameter of the system from the responses measured in steps 1), 2) and 4).

8.   (Amended) A method of testing a telecommunications system comprising first and second transmission lines, the method comprising

1)   applying a first test signal to the first line and measuring the response of the first line and the second line to the first test signal;

2)   applying a second test signal to the second line and measuring the response of the second line and the first line to the second test signal; and

3)   calculating at least one parameter of the telecommunications system from the responses measured in steps 1) and 2).

12.   (Amended) Apparatus for testing a telecommunications system, the apparatus comprising;

1)   means for applying a first AC test signal having a first signal frequency to the system;

2)   means for measuring the response of the system to the first test signal;

3)   means for applying a second AC test signal having a second signal frequency different to the first signal frequency to the system;

4)   means for measuring the response of the system to the second test signal; and

5)·   means for calculating at least one parameter of the system from the responses measured in steps 1) and 2).

13.   Apparatus for testing a telecommunications system comprising first and second transmission lines, the apparatus comprising:

1)   means for applying a first test signal to the first line;

2)   means for measuring the response of the first line and the second line to the first test signal;

3)   means for applying a second test signal to the second line;

4)   means for measuring the response of the second line and the first line to the second test signal; and

5)   means for calculating at least one parameter of the telecommunications system from the responses measured in steps 1) and 2).

Please add the following new Claims 14-20:

14.   A line model for testing telecommunications systems, the model comprising:

a) line parameters including at least one of leakage and capacitance between lines and line to earth;

b) at least one of series line resistance and conductance; and

c) termination device parameters.

15.   A method according to Claim 14, wherein the model is used to test

telecommunications systems, the method comprising the steps of:

solving the model symbolically based on multi-frequency measurements from a test

end only;

using the line model to determine line parameters, including at least one of series

resistance and conductance;

calculating high frequency parameters including insertion loss based on a low

frequency line model; and

separating line parameters from termination parameters to determine a termination

device based on single end measurements.

16.   A method according to Claim 15, further comprising the step of using at least one of

the model parameters and high frequency parameters to at least one of test and qualify the

digital service capabilities of the line for at least one of ISDN and xDSL.

17.   A method according to Claim 16, further comprising the step of testing and qualifying

the digital services from low frequency measurements through a low pass filter including a

splitter.

18.   A method according to Claim 15, further comprising the step of detecting line contact

faults using series resistance parameters.

19.   A method according to Claim 15, further comprising the step of detecting loading

coils using inductance parameters.

20.   A method according to Claim 15, further comprising the step of detecting bridge taps

by comparing series parameters with shunt parameters.